



Institute of Actuaries of India
Statutory body established under an Act of Parliament

Presents



INDIA'S FIRST OLYMPIAD OF

Actuarial Science

A promising career opportunity for Students

In exclusive association with



BROCHURE

Actuarial Science As A Career

In today's fast changing and fragile environment, the Actuarial Science tools are useful in all walks of life. Actuarial Science tools are useful in Insurance, Banking, Finance, Energy, Environment, Social Science, Risk Management and Governance. Data Science Practices and Tools are built on the strong foundation laid by Actuarial Science.

Statistics & Data Science, Commercial Mathematics, Linear Algebra, Calculus & Mathematical Reasoning and Modelling are some basic techniques leveraged by Actuarial Science.

About An Actuary

“Actuary” means a person skilled in determining the present effects of future contingent events or in finance modelling and risk analysis in different areas of insurance, or calculating the value of life interests and insurance risks, or designing and pricing of policies, working out the benefits recommending rates relating to insurance business, annuities, insurance and pension rates on the basis of empirically based tables and includes a statistician engaged in such technology, taxation, employees' benefits and such other risk management and investments and who is a fellow member of the Institute of Actuaries of India.

Opportunities In Actuarial Science

Actuarial Science prepares students for mathematical, statistical, data science and higher order thinking. IAI empowers students with technology skills. IAI trains students in managing future, uncertain environment and risks. The course includes training in economics, finance, accountancy, communication and leadership skills. IAI closely collaborates with startups, technology industry and global captives. Our continuous professional development programs hand holds members the entire life time. With the help of vibrant actuarial community, students can easily get into high paying jobs and entrepreneurship.

About IAI

IAI is a statutory body established under The Actuaries Act 2006 (35 of 2006) for regulation of profession of Actuaries in India. The provisions of the said Act have come into force from 10th day of November 2006, in terms of the notification dated 8th November 2006, issued by the Government of India in the Ministry of Finance, Department of Economic Affairs.

“DIGNITARIES TAKE ON ACTUARIAL FRATERNITY”

“As business professionals, Actuaries help develop & utilize statistical & financial models, enabling institutions & individuals to solve complex financial issues, as well as arrive at better informed financial decisions. They assess the financial impact of uncertain events in the future and analyse risk management in various fields”

Shri Narendra Modi Ji Hon’ble Prime Minister of India as per the letter dated 9th February 2022

“The contribution made by the actuarial community in solving complex financial problems, managing uncertainties & risks, developing insurance sector & growing economy is appreciated. Hope the actuarial profession will continue to strive & make every endeavour to help & grow various sectors of economy & contribute in building a financially secure society. Actuaries together with other stakeholders would help preparing the country to respond constructively in changing world dynamics & disruptive changes around us”- **Smt. Nirmala Sitharaman Ji Hon’ble Minister of Finance & Corporate Affairs as per the letter dated 12th February 2022**

“OASIS is designed to test the theoretical concepts and practical applications of Commercial Mathematics, Calculus, Statistics, Modelling and Data Science taught to the students from Class 8 to Class 12. It aims to develop critical thinking capabilities and Higher Order Analytical Skills. It will be divided into two phases- Pre- OASIS Examination for students from Class 8-10 & OASIS Examination for students of Class 11 & 12 OASIS is the gateway to plethora of opportunities for learning & growing in fields like Insurance, Banking, Finance, Energy, Environment & Social Science, Risk Management and Corporate Risk Governance to name a few.

I would like to open this doorway for Generation Z & welcome you all to participate in our Olympiad & explore the possibilities of the world of Actuarial Science.” **Shri Subhendu Bal, President, Institute of Actuaries of India.**

Actuaries have played a very critical role, not only in risk management of insurance companies but also in shaping up the long term strategy for sustained profitability and ensuring fairness to policyholders. I have no doubt that their skills would be of great value in other areas of financial sector, like banking and investment.

Mr. Tarun Chugh, Managing Director & CEO Bajaj Allianz Life Insurance



**Hon’ble Minister of Finance & Corporate Affairs
Smt. Nirmala Sitharaman with
IAI President Shri. Subhendu Bal on 5th April 2021**

http://www.actuariesindia.org/downloads/twitter_pic.jpg

OLYMPIAD OF ACTUARIAL SCIENCE FOR INDIAN STUDENTS(OASIS)

OASIS is an Actuarial Science Olympiad organized by the Institute of Actuaries of India (IAI), a Statutory body under an Act of Parliament. It is the first Actuarial Science Olympiad.

We at IAI believe that Actuarial Science Skills can help change life, community and the whole world. As a part of the IAI 2.0 initiative that aims to reach out to the generation Z and empowers them with abilities to take informed decision about career, IAI has launched OASIS (Olympiad of Actuarial Science for Indian Students) in two stages i.e. Pre OASIS for class 9 & 10 students & OASIS for class 11 & 12 students.



How OASIS will help the Students?

- Encourage and enable statistical and mathematical thinking
- Foster problem solving and decision making
- Focus on Conceptual Learning
- Integrate real data, context and purpose with the Learning
- Use of technology to explore concept and analyze data

OASIS will test the theoretical concepts and practical applications to develop critical thinking capabilities among students. OASIS also aims to develop Higher Order Thinking Skills (HOTS) amongst students and will have 40% weightage of HOTS based questions in its Olympiad.

STRUCTURE of OASIS

OASIS will be conducted in 2 stages as follows:

OLYMPIAD	CLASS	FEES	PAPER PATTERN	SYLLABUS
PRE OASIS	9 & 10	200	40 questions of 60 marks in 60 minutes ✓ 25 questions- 1 mark each ✓ 10 questions of 2 marks each ✓ 5 questions of 3 marks each	Statistics & Data Science, Commercial Mathematics
OASIS	11 & 12	200	40 questions of 60 marks in 60 minutes ✓ 25 questions- 1 mark each ✓ 10 questions of 2 marks each ✓ 5 questions of 3 marks each	Statistics & Data Science, Commercial Mathematics, Linear Algebra, Calculus & Mathematical Reasoning and Modelling

DETAILED SYLLABUS
As in ANNEXURE I

AWARDS
As in ANNEXURE II

ANNEXURE I

DETAILED SYLLABUS FOR PRE- OASIS (Class 9 & 10)

Areas	Chapter with Sub-topics
Statistics and Data Science	1.Managing Data <ul style="list-style-type: none">• Data Handling• Grouping Data• Tabulation and Histogram• Collection and Presentation 2.Data Visualisation <ul style="list-style-type: none">• Graphical Presentation 3.Measuring Data <ul style="list-style-type: none">• Frequency Distribution• Frequency Polygon• Histogram Vs Bar Chart• Measuring Central Tendency• Measuring of Data Dispersion• Building Z Scores 4.Experimental Approach to Measure Probability <ul style="list-style-type: none">• Experimental Approach• Random Experiments• Sample Space and Events• Defining Probability
Arithmetic	5.Comparing Quantities 6.Square and Square Roots 7.Cube and Cube Roots 8.Exponents and Powers 9.Direct and Inverse Proportion 10.Factorization
Financial Mathematics	11.Indices and Logs 12.Profit and Loss 13.Compound Interest 14.Banking, and Insurance Computation 15.Installment and EMI 16.GST and Income Tax Computation 17.Share and Dividends

DETAILED SYLLABUS FOR OASIS (Class 11 & 12)

Areas	Chapter with Sub-topics
Statistics and Data Science	<p>1. Relations and Functions</p> <ul style="list-style-type: none"> • Sets and their representation. • Union, intersection, and complement of sets and their algebraic properties. • Power-set • Relation, Types of relations, equivalence relations. • Functions; one-one, into and onto functions, the composition of functions <p>2. Permutation and Combination</p> <ul style="list-style-type: none"> • The fundamental principle of counting. • Permutation as an arrangement and combination as a selection. • Meaning of $P(n,r)$ and $C(n,r)$. Simple applications <p>3. Binomial Theorem</p> <ul style="list-style-type: none"> • Binomial theorem for a positive integral index. • General term and middle term. • Properties of Binomial coefficients and simple applications. <p>4. Conditional Probability</p> <ul style="list-style-type: none"> • Probability Distribution • Random Variables • Multiplication of Probability • Bayes Theorem • Bernoulli Trials
Commercial Mathematics	<p>5. Functions</p> <ul style="list-style-type: none"> • Linear Equation of One Variable • Linear Equation of Two Variables • Quadratic Equation <ul style="list-style-type: none"> • Quadratic equations in real and complex number system and their solutions. • Relation between roots and coefficients, nature of roots, the formation of quadratic equations with given roots. • Polynomials
Linear Algebra	<p>6. Matrices</p> <ul style="list-style-type: none"> • Algebra of matrices, types of matrices, and matrices of order two and three. <p>7. Determinants</p> <ul style="list-style-type: none"> • Properties of determinants, evaluation of determinants, the area of triangles using determinants. • Adjoint and evaluation of inverse of a square matrix using determinants and elementary transformations. • Test of consistency and solution of simultaneous linear equations in two or three variables using determinants and matrices. <p>8. Vectors</p> <ul style="list-style-type: none"> • Scalars and Vectors. Addition, subtraction, multiplication, and division of vectors. • Vector's Components in 2D and 3D space. • Scalar products and vector products, triple product <p>9. Linear Programming</p>

Areas	Detailed Syllabus
Calculus	<p>10.Measuring Changes</p> <ul style="list-style-type: none"> • Straight Lines • Limits and Derivatives <p>11.Continuity and Differentiability</p> <ul style="list-style-type: none"> • Real-valued functions, algebra of functions, polynomials, rational, trigonometric, logarithmic and exponential functions, inverse functions. • Graphs of simple functions. • Limits, continuity, and differentiability. • Differentiation of the sum, difference, product, and quotient of two functions. • Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite, and implicit functions; derivatives of order up to two. • Rolle's and Lagrange's Mean Value Theorems. • Applications of derivatives: Rate of change of quantities, monotonic increasing and decreasing functions, Maxima, and minima of functions of one variable, tangents, and normal. <p>12.Integral Calculus</p> <ul style="list-style-type: none"> • Integral as an anti-derivative. • Fundamental integrals involving algebraic, exponential and logarithmic functions. • Integration by substitution, by parts, and by partial fractions. • Integration using trigonometric identities. • Integral as limit of a sum. • Evaluation of simple integrals • Fundamental Theorem of Calculus. • Properties of definite integrals, evaluation of definite integrals, determining areas of the regions bounded by simple curves in standard form. <p>13.Differential Equations</p> <ul style="list-style-type: none"> • Ordinary differential equations, their order, and degree. • Formation of differential equations. • The solution of differential equations by the method of separation of variables. • The solution of homogeneous and linear differential equations
Mathematical Reasoning and Modelling	<p>14.Reasoning and Modelling</p> <ul style="list-style-type: none"> • Statements and logical operations: or, and, implied by, implies, only if and if. • Understanding of contradiction, tautology, contrapositive and converse. <ul style="list-style-type: none"> • Arithmetic and Geometric progressions • Geometric means between two given numbers. • The relation between A.M. and G.M.

ANNEXURE II

AWARDS FOR PRE- OASIS (CLASS 9 & 10)

OLYMPIAD	RANK	CASH REWARDS	CERTIFICATE	GOLD MEDAL	MEMENTO
National Topper*	1st	INR 75,000	✓	✓	✓
National Topper*	2ND	INR 51,000	✓	✓	✓
National Topper*	3RD	INR 21000	✓	✓	✓
Zone Topper*	1ST	INR 5000	✓	✓	
Zone Topper*	2ND	INR 4000	✓	✓	
Zone Topper*	3rd	INR 2500	✓	✓	
Zone Topper*	Rank 4 to 10	INR 1000 each	✓		
Zone Topper*	Rank 11 to 25	INR 500 each	✓		

* Terms & Conditions Apply

AWARDS FOR OASIS (CLASS 11 & 12)

OLYMPIAD	RANK	CASH REWARDS	CERTIFICATE	GOLD MEDAL	MEMENTO	IAI STUDENT MEMBERSHIP+ SCHOLARSHIPS**	IAI STUDENT MEMBERSHIP [^]
National Topper*	1st	INR 1,00,000	✓	✓	✓	✓	
National Topper*	2ND	INR 75,000	✓	✓	✓	✓	
National Topper*	3RD	INR 51000	✓	✓	✓	✓	
Zone Topper*	1ST	INR 7500	✓	✓			✓
Zone Topper*	2ND	INR 5000	✓	✓			✓
Zone Topper*	3rd	INR 3000	✓	✓			✓
Zone Topper*	Rank 4 to 10	INR 1000 each	✓				
Zone Topper*	Rank 11 to 25	INR 500 each	✓				

* Terms & Conditions Apply

**Includes membership fees & cost of study materials for 2 subjects for CT level exams tentative cost INR 25,000

[^] Includes membership fees tentative cost INR 5,000

TIE BREAKER

- LEVEL 1- The student who has maximum correct answers for 3 marks questions
- LEVEL 2- The student who has maximum correct answers for 2 marks questions
- LEVEL 3- The student who has the least incorrect answers
- LEVEL 4- If all above are fulfilled, then prize money will be equally distributed among all students.

SCHOOL LEVEL PRIZES		
TOPPER	RANK	AWARDS
School	1st	Gold medal
School	2nd	Silver medal
School	3rd	Bronze medal

In addition to above for SCHOOL Level below will also be given:

- Participation Certificates for all students.
- Top 3 Students of each class (including all sections) will be awarded with Gold Medal, Silver Medal & Bronze Medal if total participation per class per Olympiad is 10 or above.
- Merit Certificates for Level 2 examination qualifiers
- First Rank holder of each class (including all sections) will be awarded with Gold Medal if total participation per class per Olympiad is between 5 to 9 participants.
- FREE Interactive Dashboard for Schools powered with Reports, Performance Analysis, Records, School result analysis at School, Zonal & National Level leading to successful students and improved academic results of students.
- FREE Interactive dashboard to students powered with Mock tests, Preparatory Books, Video Tutorials & Scholarship Events.

All awards above and an opportunity to meet & learn from C-Level Executive of IAI

Institute of Actuaries of India

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